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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/620,018	07/15/2003	Daniel C. Merkel	H0004175	8618

7590 10/05/2004

Colleen D. Szuch, Esquire  
Honeywell International, Inc.  
101 Columbia Road  
P.O. Box 2245  
Morristown, NJ 07962-2245

EXAMINER
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NGUYEN, NGOC YEN M

ART UNIT	PAPER NUMBER
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1754

DATE MAILED: 10/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	10/620,018	MERKEL ET AL. <span style="float: right;">S.C.</span>	
	Examiner	Art Unit	
	Ngoc-Yen M. Nguyen	1754	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |  |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____  |

### DETAILED ACTION

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 7-9 are rejected under 35 U.S.C. 102(b) as being anticipated by Belter (5,874,658).

Belter '658 discloses a method of separating a mixture of at least one hydrofluorocarbon and hydrogen fluoride comprising treating said mixture with a compound selected from the group consisting of an alkanolamine and sulfuric acid (note column 1, lines 20-55). Sulfuric acid, i.e. 100% (1.8035 specific gravity) or aqueous solutions of sulfuric acid, i.e. <100% H<sub>2</sub>SO<sub>4</sub> (specific gravity from about 1.830 to about 1.0051) or aqueous solutions of sulfuric acid admixed with at least one alkali metal sulfate can be used (note column 1, lines 50-55). The concentration for the sulfuric acid with a specific gravity of 1.0051 is between 1 and 2 %, this value is less than the claimed range of "less than about 93 wt.%".

The hydrofluorocarbon in Belter '658 can be 1,1,1,3,3-pentafluoropropane (hfc-245fa)(note column 3, lines 1-3).

The process of Belter '658 anticipates the claimed process.

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The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Belter '658 optionally in view of Swain (5,895,639).

Belter '658 discloses a process for separating HF from an organic fluorine compound as mentioned in the above rejection.

For other values for the concentration of the sulfuric acid, the range disclosed in Belter '658 overlaps the claimed range. With respect to the encompassing and overlapping ranges previously discussed, the subject matter as a whole would have been obvious to one of ordinary skill in the art at the time of invention to select the portion of the prior art's range which is within the range of the applicants' claims because it has been held prima facie case of obviousness to select a value in a known range by optimization for the results. *In re Boesch*, 205 USPQ 215. Additionally, the subject matter as a whole would have been obvious to one of ordinary skill in the art at the time invention was made to have selected the overlapping portion of the range disclosed by the reference because overlapping ranges have been held to be a prima facie case of obviousness. *In re Malagari*, 182 USPQ.

Beside the hfc-245fa as disclosed in the examples, Belter '658 discloses generically that process can be used to separate HF from "hydrofluorocarbon" (note

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claim 1). Thus, it would have been obvious to one of ordinary skill in the art to use the process of Belter '658 to separate other hydrofluorocarbon, other than hfc-245a, from HF.

The difference not yet discussed is Belter '658 does not disclose that step of separating HF from sulfuric acid.

Swain '639 discloses a process for separation of hydrogen fluoride from fluorocarbon/HF mixture by sulfuric acid (note claim 1). Swain further discloses that HF is separated from the sulfuric acid by distillation (note column 4, lines 13-14). The separated HF and sulfuric acid can be recycled (note column 3, lines 23-27).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to separate the HF from the sulfuric acid in the process of Belter '658, as suggested by Swain '639 because by doing so the HF and sulfuric acid can be recycled. Since the HF acid used in Belter '658 is anhydrous hydrogen fluoride (note column 3, lines 2-3), it would also have been obvious to one skilled in the art to optimize the distillation process to obtain anhydrous HF.

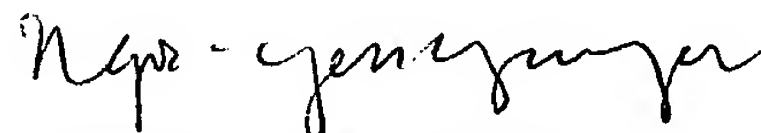
The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ngoc-Yen M. Nguyen whose telephone number is (571) 272-1356. The examiner is currently on Part time schedule.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Stan Silverman can be reached on (571) 272-1358. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed (571) 272-1700.



Ngoc-Yen M. Nguyen  
Primary Examiner  
Art Unit 1754

nmn  
October 1, 2004